

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

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In re Patent Application of:  
Nebot, et al.

Application No.: 10/573,104

Confirmation No.: 8922

Filed: March 23, 2006

Art Unit: 2617

For: Virtual Network System

Examiner: Charles T. Shedrick

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**REPLY BRIEF**

Mail Stop Appeal Brief - Patents  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

In response to the Examiner's Answer dated February 9, 2010, Appellants respectfully requests the following reply brief and its arguments be considered by the Board.

Claims 13-18 and 21 stand rejected under 35 U.S.C. §102 as being anticipated by International Publication No. WO 02/025968 ("Troemel"), and claims 19, 20 and 22 stand rejected under 35 U.S.C. §103(a) as being obvious over the combination of Troemel and U.S. Patent No. 5,375,059 ("Kyrtos"). Claim 13 is the only independent claim, and thus, all of the pending dependent claims, i.e., claims 14-22, rise and fall with claim 13. Accordingly, any deficiencies in the rejection of claim 13 will render the rejections of the pending dependent claims, i.e., claims 14-22, as deficient.

The "Grounds of Rejection" section of the Examiner's Answer reflects the Examiner's arguments as presented in the Final Office Action of February 18, 2009 verbatim. Appellants have fully traversed and addressed each of those arguments in the Appeal Brief filed on September 17, 2009, and thus, do not submit any further arguments in this Reply Brief in response to same.

The "Response to Argument" section presents additional arguments which the Examiner relies upon to further support his rejections of the claims. However, the Examiner's arguments are based on misconstrued interpretations of the claim language and the result of improper examination of the pending claims. At least for these reasons alone,

the anticipation rejection of claim 13 based upon Troemel must fail and should be withdrawn, as discussed more specifically below.

**I. The claims must be given their broadest reasonable interpretation consistent with the specification.**

At the outset, the Examiner furnishes his own example to support the assertion that the claims lack novelty and/or an inventive step. Specifically, on page 9 of his Answer, the Examiner provides an example in which “a wireless laptop in the upstairs bedroom transmit[s] and receive[s] to a laptop within the bedroom and a laptop in the living room.” Using his example, the Examiner asserts the laptops can equate the claimed plurality of stations including at least one mobile station able to travel between regions, and that the bedrooms and living room can equate the claimed two or more including at least one region being beyond normal wireless communication range of the other regions. However, the Examiner’s example is merely a speculative hypothetical situation and cannot be viewed as evidence of anticipation of independent claim 13. Nonetheless, the hypothetical example proposed by the Examiner is also deficient in that it still fails to properly consider each and every limitation of the claims in light of the specification.

According to MPEP §2111, “[t]he Patent and Trademark Office (‘PTO’) determines the scope of claims in patent applications not solely on the basis of the claim language, but upon giving claims their broadest reasonable construction ‘in light of the specification as it would be interpreted by one of ordinary skill in the art.’ *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364[, 70 USPQ2d 1827] (Fed. Cir. 2004).” On page 9 of his Answer, the Examiner asserts that “the claim language reads on just about all mobile networks” and does not take into consideration what is taught throughout the specification of the present application. Immediately, it can be seen that the Examiner unreasonably broadens his interpretation of the claims as pertaining to *any* mobile network, when in fact the claims and the entirety of the specification are directed toward a very specific type of virtual network that is composed of ad-hoc sub-networks employing one or more movable mobile stations to communicate therebetween.

Among other things, claim 13 specifically requires “a plurality of stations arranged to interface *with each other* by wireless communication in two or more regions and within each region”. The Examiner asserts that because the laptops of his example can communicate with one another, that they are equivalent to the claimed stations. However, the

laptops rely upon a centralized network provided by, for instance, a central wireless router, which provides a wireless interface between the two or more laptops. In order for a first laptop located in the bedroom of the Examiner's example to wirelessly transmit information to a second laptop that is located in the same bedroom or in another room, the information must be transmitted from the first laptop to at least the central router, and then from the central router to the second laptop. None of the laptops in the Examiner's example are shown to directly "interface *with each other* by wireless communication", as required by the pending claims and clearly defined throughout the present application.

The present application in its entirety is specifically based on direct node-to-node wireless communications, such as in ad-hoc networks. For instance, the background, paragraphs [0002]-[0003] of the present application (Publication No. 2007/0008938), begins with a discussion about the drawbacks associated with prior art ad-hoc networks, including their lack of mobility and their inability to dynamically extend over considerable distances. The specification of the present application then focuses on overcoming such drawbacks by joining those ad-hoc sub-networks to form an extended virtual wireless network which interconnects the otherwise disconnected regions of ad-hoc sub-networks. To join those regions of ad-hoc sub-networks, the present application employs at least one claimed mobile station. Rather than relying upon centralized and static base structures, such as those suggested in the Examiner's example as well as in Troemel's disclosure, the claimed mobile station are capable of moving between the regions and dynamically connecting directly with any immediate ad-hoc sub-network within a given virtual network. For example, Fig. 3 of the present application provides a movable mobile station 5 that is capable of intercommunicating with ad-hoc sub-networks or regions F, G and H that are otherwise beyond normal communication range. Paragraph [0040] of the present application also teaches how a mobile station or truck 10 is able to directly form a wireless ad-hoc connection with various mobile devices 11. Accordingly, all communications within the claimed virtual network are not maintained in a centralized manner, as suggested by the Examiner's example or by Troemel, but rather by direct ad-hoc network connections. As defined by The National Institute of Standards and Technology:

[a] wireless ad hoc network is a collection of autonomous nodes or terminals that communicate *with each other* by forming a multihop radio network and maintaining connectivity in a *decentralized* manner...Each node in a

wireless ad hoc network functions as both a host and a router, and the control of the network is distributed among the nodes.<sup>1</sup>

As a person of ordinary skill in the art having read the specification of the present application would certainly interpret the claimed “plurality of stations arranged to interface *with each other*” as referring to direct node-to-node, decentralized connections, Appellants submit that the Examiner’s interpretations of the claimed wireless communication are unreasonably broad and inconsistent with the specification.

Claim 13 additionally requires that the stations interface with each other in two or more regions and within each region, wherein at least one of said regions is beyond normal wireless communication range of the other regions. Claim 13 also requires at least one mobile station that travels between regions to receive and/or transmit information by wireless communication in one region when in that region and, and receive and/or transmit information to other regions when in those regions. Referring back to his furnished example, the Examiner allegedly equates the bedroom and the living room to the claimed two or more regions. Moreover, the Examiner ambiguously defines the bedroom as including the normal communication range, and further, defines the living room as equating the at least one region being beyond normal communication range, as specified in the pending claims. To support this, the Examiner overreachingly asserts the claimed regions are defined by any “physical characteristics, human characteristics, and functional characteristics”. The Examiner further asserts that the laptops of his example can serve as the claimed mobile stations because they can travel between rooms and communicate with other laptops in those rooms. Again, the Examiner’s interpretations of the claims are unreasonably broad and inconsistent with the specification of the present application.

The present application is directed toward mining environments wherein regions or subgroups of equipment are located over considerable distances in a constantly changing manner. As previously discussed, the claimed regions are composed of sub-networks of stations, equipment and/or agents which communicate to one another via direct node-to-node connections. To better adapt to the dynamically changing and considerably distant relationships between the regions, the present application relies upon the claimed mobile station to travel between the regions and essentially relay information between regions that are otherwise beyond normal communication range. As taught in paragraphs

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<sup>1</sup> “Wireless Ad-Hoc Networks: Background.” The National Institute of Standards and Technology. Advanced Network Technologies Division. Web. 4 Jun. 2008.

[0040]-[0044] of the present application, the mobile station can be implemented in the form of a truck or some other work machine that is integrated with a computer box having wireless capabilities. As a result, a decentralized and dynamically adaptable virtual network is formed interconnecting several distant regions or subgroups of machines. The example furnished by the Examiner fails to explain how mere rooms of a home can be reasonably compared to considerably distanced and dynamically positioned regions of ad-hoc sub-networks that are beyond normal communication range, let alone subgroups of mining equipment dynamically distributed about a mining environment. The Examiner also fails to specify how mere laptops situated in such a home is comparable to trucks or other work machines that are implemented with computer systems and configured as mobile stations of a virtual network, as defined by the present application. According to his example then, the Examiner suggests that one of the laptops allegedly serving as a mobile station can receive information from one laptop in the bedroom, travel to the living room, and relay the information to the laptop in the living room. Not only is this impractical and unreasonable, but it is also not consistent with what is clearly defined throughout the specification of the present application. A person having ordinary skill in the art having read the specification of the present application would certainly not interpret the claimed virtual network as being implemented by a mere laptop which travels between different rooms of a home to relay information between the laptops located in those rooms.

On several accounts, the Examiner fails to reasonably interpret the claim language in light of the specification as it would be interpreted by one of ordinary skill in the art, and thus, fails to properly determine the scope of the pending claims. Appellants respectfully submit that any rejection based upon such misinterpretations of the claims must fail and should be withdrawn.

## **II. The claims must be considered as a whole.**

In reviewing the "Response to Argument" section of his Answer, it is clear that the Examiner divides the pending claims into discrete elements and improperly examines each element in an isolated manner. According to MPEP §2106, which states:

when evaluating the scope of a claim, every limitation in the claim must be considered. USPTO personnel may not dissect a claimed invention into discrete elements and then evaluate the elements in isolation. Instead, the claim as a whole must be considered. See, e.g., *Diamond v. Diehr*, 450 U.S. 175, 188-89, 209 USPQ 1, 9 (1981),

it is clear that the Examiner fails to consider each of the pending claims as a whole, and thus, fails to properly examine the pending claims. More specifically, throughout pages 8-10 of his Answer, the Examiner separates the elements of independent claim 13 into five discrete limitations. Of those limitations, the Examiner regards the third limitation as:

at least one station is a mobile station able to travel between regions,

the fourth limitation as:

said mobile station being adapted to receive and/or transmit information by wireless communication in one region when in that region,

and the fifth limitation as:

receive and/or transmit information to other regions when in those regions.

The Examiner then applies the laptop of his furnished example to each of the above-identified limitations individually. With respect to the "third limitation", the Examiner asserts that "the laptop can travel from the bedroom to the living room." With respect to the "fourth limitation", the Examiner asserts that "the laptops communicate wirelessly with each other within the bedroom." With respect to the "fifth limitation", the Examiner asserts that "the laptops can move throughout the house communicating to each other within the rooms or outside of the rooms." In each individual analysis, the Examiner simply furnishes a laptop that is allegedly capable of accomplishing the one particular limitation claimed and ignores what is being claimed as a whole. Moreover, the Examiner fails to provide a virtual network which relies upon at least one mobile station that communicates information between regions, or sub-networks of directly communicating stations, that are otherwise beyond normal communication range.

When considered as a whole, and when read in light of the specification, one of ordinary skill in the art would understand that claim 13 specifies a mobile station, such as the truck 5 of Fig. 3 of the present application, which is implemented with a computer box to wirelessly relay information between two or more regions, such as F, G and H, that are otherwise beyond normal communication range. As the Examiner fails to properly examine

each of the pending claims as a whole, Appellants respectfully submit that any rejection based upon such examination must also fail and should be withdrawn.

### **III. Troemel does not anticipate the pending claims**

On pages 11-13 of his Answer, the Examiner provides reiterated arguments to purportedly maintain that claim 13 is anticipated by Troemel. However, according to MPEP §2131, “[a] claim is anticipated only if each and every element set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” In the Appeal Brief filed September 17, 2009, Appellants have sufficiently established the deficiencies of Troemel. Among other things, the mobiles of Troemel cannot *interface with each other* by wireless communication in two or more regions *and* within each region, and further, the mobiles of Troemel cannot travel between regions to receive and/or transmit information by wireless communication in one region when in that region and to other regions when in those regions, as required by the pending claims. In furtherance to the arguments filed in the Appeal Brief, Appellants respectfully submit that the anticipation rejection of claim 13 based upon Troemel must also fail for at least the following deficiencies.

Beginning on page 11 of his Answers, the Examiner persists that the mobiles 110 of Troemel are capable of communicating data wirelessly from vehicle to vehicle as well as between multiple regions. However, as previously discussed in section I above, the Examiner’s assertions are based on his own misinterpretations of the claim language and an inaccurate determination of the scope thereof. More specifically, the Examiner interprets communications between the claimed stations as encompassing all types of mobile communication schemes including indirect and centralized network connections, when the present specification clearly defines all claimed wireless communications to be direct, node-to-node type connections. Although the Examiner admits that Troemel is able to transmit data from one mobile in one alleged region to another mobile in another alleged region *only* through a base station, the Examiner asserts that such communication is within the scope of the pending claims. However, one of ordinary skill in the art having read the specification of the present application would interpret the claimed stations as only *directly* communicating with each other through node-to-node wireless connections, such as via ad-hoc sub-networks, and not through a centralized base station system, as in Troemel.

Furthermore, the Examiner ambiguously asserts that the claimed regions in Troemel “are illustrated along the path of at least figure 5 as the mobiles travel” without

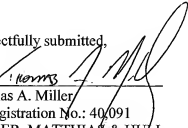
specifying how each region is established or how each region is distinguished from one another. To support this, the Examiner simply relies on his broad interpretation of the claimed regions to mean any "spatial location". However, the present application clearly defines each region or zone as being composed of subgroups of work machines, agents or stations that are wirelessly interconnected with each other via node-to-node network connections. Again, one having skill in the art after having read the specification of the present application would understand that the claimed two or more regions specify distinct sub-networks of ad-hoc connections, wherein at least one region is beyond normal communication range of other regions, and not merely indistinguishable spatial locations as defined by the Examiner.

Because Troemel fails to teach each and every element of independent claim 13, and because the Examiner fails to properly determine the scope of claim 13 in light of the specification, the anticipation rejection of claim 13 based upon Troemel and the Examiner's arguments must also fail and should be withdrawn. Further, as the pending claims 14-22 rise and fall with claim 13, Appellants respectfully submit that the prior art rejections of claims 14-22 must also fail and should be withdrawn.

In light of all of the foregoing, and especially in light of the arguments set forth in the Appeal Brief of September 17, 2009, Appellants respectfully submit that the pending claims are in condition for allowance, that the Examiner's arguments set forth in the Answer are flawed, and that each of the rejections set forth in the final office action should be reversed.

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Respectfully submitted,

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